

IN THE CLAIMS:

1. (Currently Amended) A broadcasting apparatus that broadcasts a specific program to which a reproduction time period between a starting time and a finishing time is specified, the reproduction being performed by a receiving apparatus, the broadcasting apparatus comprising:

allotment means for allotting a broadcasting bandwidth for the reproduction time period to the specific program and allotting a part of the broadcasting bandwidth for a preceding time period immediately before the reproduction time period to the specific program and the other part of the broadcasting bandwidth to ~~other~~ another program; and

transmission means, in accordance with the result of allotment by the allotment means, for (a) repeatedly transmitting program data of the other program while transmitting program data of the specific program in the preceding time period, and (b) repeatedly transmitting the program data of the specific program in the reproduction time period.

2. (Original) The broadcasting apparatus of Claim 1,

wherein the allotment means sets a starting time of the preceding time period as a first time and a time included in between the first time and the starting time of the reproduction time period as a second time, and

the allotment means (a) allots a broadcasting bandwidth not broader than a predetermined broadcasting bandwidth to the specific program from the first time to the second time, and (b) allots a broadcasting bandwidth broader than the predetermined broadcasting to the specific program from the second time to the finishing time of the reproduction time period.

3. (Original) The broadcasting apparatus of Claim 2,

wherein the transmission means transmits the program data having a second ID of the specific program for the preceding time period, and repeatedly transmits control data as well as the program data for the reproduction time period, and

the control data has a first ID and includes instructions for the receiving apparatus, when the receiving apparatus receives the program data having the second ID, to cache and reproduce the program data,

wherein a program data having the first ID must be taken in by the receiving apparatus, and the second ID is different from the first ID.

4. (Original) The broadcasting apparatus of Claim 2,

wherein the program data for the specific program is classified into (a) a first type program data and (b) a second type program data which is different from the first type program data at least in part, and

the transmission means transmits the first type program data for a duration from the first time to the starting time of the reproduction time period, and transmits the second type program data for a duration from the second time to the finishing time of the reproduction time period.

5. (Original) The broadcasting apparatus of Claim 2, further comprising:

means for transmitting a cache instruction message before the starting time of the reproduction time period of the specific program,

wherein the cache instruction message instructs the receiving apparatus to cache the received program data of the specific program.

6. (Original) The broadcasting apparatus of Claim 2,
wherein the program data of the other programs which is repeatedly transmitted by the transmission means in the preceding time period includes an instruction for the receiving apparatus, when the receiving apparatus receives the program data of the specific program, to cache the program data.

7. (Original) The broadcasting apparatus of Claim 2, further comprising:
means for repeatedly transmitting a cache instruction message at a time interval that is not longer than a transmission period of the program data of the specific program before the starting time of the reproduction time period of the specific program,
wherein the cache instruction message instructs the receiving apparatus to cache the received program data of the specific program.

8. (Original) The broadcasting apparatus of Claim 2, further comprising:
means for transmitting a reproduction instruction message at the starting time of the reproduction time period of the specific program,
wherein the reproduction instruction message instructs the receiving apparatus to reproduce the recorded program data of the specific program immediately after receiving the message.

9. (Original) The broadcasting apparatus of Claim 2, further comprising:
means for transmitting a reproduction instruction message before the starting time of the reproduction time period of the specific program,
wherein the reproduction instruction message instructs the receiving apparatus to reproduce the recorded program data of the specific program at the starting time of reproduction time period of the specific program.

10. (Original) The broadcasting apparatus of Claim 2, further comprising:

means for transmitting a deletion instruction message at the finishing time of the reproduction time period of the specific program,

wherein the deletion instruction message instructs the receiving apparatus to delete the recorded program data of the specific program immediately after receiving the message.
11. (Original) The broadcasting apparatus of Claim 2 further comprising:

means for transmitting a deletion instruction message before the finishing time of the reproduction time period of the specific program,

wherein the deletion instruction message instructs the receiving apparatus to delete the recorded program data of the specific program at the finishing time of the reproduction time period of the specific program.
12. (Original) The broadcasting apparatus of Claim 2 further comprising:

table data transmission means for transmitting table data before the starting time of the reproduction time period of the specific program, wherein the table data includes information on correspondences between instructions to cache, reproduce, and delete the program data of the specific program and instruction IDs that are assigned for the instructions;

first message transmission means for transmitting a first message before the starting time of the reproduction time period of the specific program, wherein the first message consists of an instruction ID that identifies the cache instruction and a program ID that identifies the program data of the specific program;

second message transmission means for transmitting a second message at the starting time of the reproduction time period of the specific program, wherein the second

message consists of an instruction ID that identifies the reproduction instruction and a program ID that identifies the program data of the specific program; and

third message transmission means for transmitting a third message at the finishing time of the reproduction time period of the specific program, wherein the third message consists of an instruction ID that identifies the deletion instruction and a program ID that identifies the program data of the specific program.

13. (Original) The broadcasting apparatus of Claim 2, further comprising:

table data transmission means for transmitting table data before the starting time of the reproduction time period of the specific program, wherein the table data includes information on correspondences between instructions to cache, reproduce, and delete the program data of the specific program and data IDs for identifying the instructions;

first data transmission means for transmitting a first data before the starting time of the reproduction time period of the specific program, wherein the first data has a data ID which identifies the cache instruction as an instruction to be executed by the receiving apparatus;

second data transmission means for transmitting a second data at the starting time of the reproduction time period of the specific program, wherein the second data has a data ID which identifies the reproduction instruction as an instruction to be executed by the receiving apparatus; and

third data transmission means for transmitting a third data at the finishing time of the reproduction time period of the specific program, wherein the third data has a data ID which identifies the deletion instruction as an instruction to be executed by the receiving apparatus.

14. (Original) The broadcasting apparatus of Claim 2,

wherein the time period between the second time and the starting time of the reproduction time period and the allocated broadcasting bandwidth for transmitting the program data of the specific program from the second time to the starting time of the reproduction time period are necessary for transmitting data whose data size is larger than the data size of the program data of the specific program.

15. (Original) The broadcasting apparatus of Claim 2,

wherein the allotment means allots a narrower bandwidth for transmitting the program data for the specific program from the second time to the starting time of the reproduction time period of the specific program then a bandwidth for transmitting the program data from the starting time to the finishing time of the reproduction time period.

16. (Original) The broadcasting apparatus of Claim 2,

wherein the allotment means allots a fixed broadcasting bandwidth to the specific program from the first time to the second time.

17. (Currently Amended) A broadcasting apparatus that transmits a data broadcasting program and a first and a second specific programs which are interposed in the data broadcasting program, the broadcasting apparatus comprising:

allotment means for

(a) allotting a broadcasting bandwidth for a first time period and a second time period to the first specific program and the second specific program, the first time period and the second time period are included in a total time period between a starting time and a finishing time for broadcasting the data broadcasting program, and

(b) allotting a part of the broadcasting bandwidth to the first and the second specific programs and the other part of the broadcasting bandwidth to the data broadcasting program for all of time periods other than the first and the second time periods in the total time period;

instruction generation means for generating a first storage instruction and a second storage instruction that instruct the receiving apparatus to store a program data for the first specific program and a program data for the second specific program in a storing unit in the receiving apparatus, respectively, and generating a first reproduction instruction and a second reproduction instruction that instruct a receiving apparatus to reproduce the program data for the first specific program and the program data for the second specific program, respectively, in case that the program data for the first specific program and the program data for the second specific program have been stored in the storing unit;

transmission means for repeatedly transmitting the program data of each of the data broadcasting program, the ~~first~~ first specific program, and the second specific program in accordance with the result of allotment by the allotment means; and control means for controlling the transmission means so as to transmit (a) a plurality of the first storage instructions before the first time period, (b) the first reproduction instruction at the starting time of the first time period, (c) a plurality of the second storage instructions before the second time period, and (d) the second reproduction instruction at the starting time of the second time period.

18. (Currently Amended) The broadcasting apparatus of Claim 17,

wherein the allotment means allots

(a) a broadcasting bandwidth not narrower than a predetermined broadcasting bandwidth to the program data of the first specific program for the first time period,

(b) a broadcasting bandwidth not ~~broader~~ narrower than the predetermined broadcasting bandwidth to the program data of the second specific program for the second time period,

(c) a broadcasting bandwidth narrower than the predetermined broadcasting bandwidth to the program data of the first specific program for a time period other than the first time period in the total time period, and

(d) a broadcasting bandwidth narrower than the predetermined broadcasting bandwidth to the program data of the second specific program for a time period other than the second time period in the total time period.

19. (Original) The broadcasting apparatus of Claim 17,

wherein the allotment means allots

(a) a broadcasting bandwidth not narrower than a predetermined broadcasting bandwidth to the program data of the first specific program for the first time period and a time period immediately before the first time period,

(b) a broadcasting bandwidth not narrower than the predetermined broadcasting bandwidth to the program data of the second specific program for the second time period and a time period immediately before the second time period,

(c) a broadcasting bandwidth narrower than the predetermined broadcasting bandwidth to the program data of the first specific program for a time period other than the first time period and the time period immediately before the first time period in the total time period, and

(d) a broadcasting bandwidth narrower than the predetermined broadcasting bandwidth to the program data of the second specific program for a time period other than the

second time period and the time period immediately before the second time period in the total time period.

20. (Currently Amended) A broadcasting apparatus that transmits a data broadcasting program and a first and a second specific programs which are interposed in the data broadcasting program, the broadcasting apparatus comprising:

allotment means for

(a) allotting a broadcasting bandwidth for a first time period and a second time period to the first specific program and the second specific program, the first time period and the second time period are included in a total time period between a starting time and a finishing time for broadcasting the data broadcasting program, and

(b) allotting (1) a broadcasting bandwidth to the data broadcasting data program in the total time period except for the first time period and the second time period, (2) a part of the broadcasting bandwidth to the first specific program for a time period preceding to the first time period in the total time period, and (3) a part of the broadcasting bandwidth to the second specific program for a time period preceding to the second time period in the total time period;

instruction generation means for generating a first storage instruction and a second storage instruction that instruct: a receiving apparatus to store a program data for the first specific program and a program data for the second specific program in a storing unit in the receiving apparatus, respectively, and generating a first reproduction instruction and a second reproduction instruction that instruct the receiving apparatus to reproduce the program data for the first specific program and the program data for the second specific program, respectively, in case that the program data for the first specific program and the program data for the second specific program have been stored in the storing unit;

transmission means for repeatedly transmitting the program data of each of the data broadcasting program, the ~~first~~ first specific program, and the second specific program in accordance with the result of allotment by the allotment means; and

control means for controlling the transmission means so as to transmit (a) a plurality of the first storage instructions before the first time period, (b) a plurality of the second storage instructions before the second time period, (c) the first reproduction instruction at the starting time of the first time period, and (d) the second reproduction instruction at the starting time of the second time period.

21. (Original) The broadcasting apparatus of Claim 20,
- wherein the allotment means allots
- (a) a broadcasting bandwidth not narrower than a predetermined broadcasting bandwidth to the program data of the first specific program for the first time period,
 - (b) a broadcasting bandwidth not narrower than the predetermined broadcasting bandwidth to the program data of the second specific program for the second time period,
 - (c) a broadcasting bandwidth narrower than the predetermined broadcasting bandwidth to the program data of the first specific program for a time period preceding to the first time period in the total time period, and
 - (d) a broadcasting bandwidth narrower than the predetermined broadcasting bandwidth to the program data of the second specific program for a time period preceding to the second time period in the total time period.

22. (Currently Amended) The broadcasting apparatus of Claim 20,
wherein the allotment means allots

(a) a broadcasting bandwidth not narrower than a predetermined broadcasting bandwidth to the program data of the first specific program for the first time period and a time period immediately before the first time period,

(b) a broadcasting bandwidth not narrower than the predetermined broadcasting bandwidth to the program data of the second specific program for the second time period and a time period immediately before the second time period,

(c) a broadcasting bandwidth narrower than the predetermined broadcasting bandwidth to the program data of the first specific program for a time period preceding to the first time period ~~and the immediately preceding period to the first time period~~ in the total time period, and

(d) a broadcasting bandwidth narrower than the predetermined broadcasting bandwidth to the program data of the second specific program for a time period preceding to the second time period and the immediately preceding period to the second time period in the total time.

23. (Original) A broadcasting apparatus that transmits a program block which is composed of a data broadcasting program and a program or two or more successive programs which are interposed in the data broadcasting program, wherein a reproduction time period between a starting time and a finishing time is specified to each of the data broadcasting program and programs included in the program block and the reproduction is performed by a receiving apparatus, the broadcasting apparatus comprising:

allotment means for

(a) allotting a broadcasting bandwidth from a first time to the starting time of the reproduction time period of the leading program included in the specific program block to the data broadcasting program and all of the programs included in the specific program block, and

(b) allotting the broadcasting bandwidth for a reproduction time period of each program included in the specific program block to the program and the following programs included in the same program block,

wherein the first time is a time in the reproduction time period of the data broadcasting program and which satisfies a condition so as not to interpose the other program blocks. between the first time and the specific program block;

instruction generation means for generating a storage instruction that instructs the receiving apparatus to store a program data of each program included in the specific program block in a storing unit in the receiving apparatus, and generating a reproduction instruction that instructs the receiving apparatus to reproduce the program data, in case that the program data of each program has been stored in the storing unit;

transmission means for repeatedly transmitting the program data of the data broadcasting program and each program included in the specific program block in accordance with the result of allotment by the allotment means; and

control means for controlling the transmission means so as to transmit a plurality of the storage instructions for each program included in the specific program block before the starting time of the reproduction time period of the program, and transmit the reproduction instruction for the program at the starting time of the reproduction time period of the program.

24. (Original) The broadcasting apparatus of Claim 23,

wherein the allotment means allots (a) a broadcasting bandwidth not narrower than a predetermined broadcasting bandwidth to each program included in the specific program

block for a reproduction time period of each program, and (b) a broadcasting bandwidth narrower than the predetermined broadcasting bandwidth to each program for a time period other than the reproduction time period.

25. (Original) The broadcasting apparatus of Claim 23,

wherein the allotment means allots (a) a broadcasting bandwidth not narrower than a predetermined broadcasting bandwidth to each program included in the specific program block for a time period between a time immediately before the starting time of the reproduction time period of the program and the finishing time of the reproduction time period of the program, and (b) a broadcasting bandwidth narrower than the predetermined broadcasting bandwidth to the program for the other time periods.

26. (Original) The broadcasting apparatus of Claim 23,

wherein in case that a first program and a second program which follows the first program are included in the program block,

the allotment means determines a broadcasting bandwidth which is allocated to each of the first program and the second program for a first through a third transmission time periods in the following manner:

wherein the first through the third transmission time periods are time periods which are divided by the first time, a second time, the finishing time of the reproduction time period of the first program, and the finishing time of the reproduction time period of the second program in the stated order,

wherein the second time is a time for the reproduction time period of the data broadcasting program,

the allotment means allots (a) a broadcasting bandwidth not broader than a predetermined broadcasting bandwidth to the first and the second programs for the first transmission time period,

(b) a broadcasting bandwidth broader than the predetermined broadcasting bandwidth to the first program and a broadcasting bandwidth not broader than the predetermined broadcasting bandwidth to the second program for the second transmission period, and

(c) a broadcasting bandwidth broader than the predetermined broadcasting bandwidth to the second program for the third transmission time period.

27. (Currently Amended) The broadcasting apparatus of Claim 23,

wherein in case that a first program and a second program which follows the first program are included in the program block,

the allotment means determines a broadcasting bandwidth which is allocated to the first program and the second program for a first through a fourth transmission time periods in the following manner:

wherein the first through the fourth transmission time periods are time periods which are divided by the first time, a second time, a third time, the starting time of the reproduction time period of the second program, and the finishing time of the reproduction time period of the second program in the stated order,

wherein the second time is a time in the reproduction time period of the data broadcasting program, and the third time is a time in the reproduction time period of the first program,

the allotment means allots

(a) a broadcasting bandwidth not broader than a predetermined broadcasting bandwidth to the first and the second programs for the first transmission time period,

(b) a broadcasting bandwidth broader than the predetermined broadcasting bandwidth to the first program and a broadcasting bandwidth not broader than the predetermined broadcasting bandwidth to the second program for the second transmission period,

(c) a broadcasting bandwidth broader than the predetermined broadcasting bandwidth to the first program and a broadcasting bandwidth broader than the predetermined broadcasting bandwidth to the second program for the third transmission time period, and

(d) a broadcasting bandwidth broader than the predetermined broadcasting bandwidth to the first program and a broadcasting bandwidth broader than the predetermined broadcasting bandwidth to the second program for the fourth transmission time period.

28. (Currently Amended) A broadcasting method for broadcasting a specific program to which a reproduction time period between a starting time and a finishing time is specified, the reproduction being performed by a receiving apparatus, the broadcasting method comprising the steps of:

an allotment step for allotting a broadcasting bandwidth for the reproduction time period to the specific program and an instruction generation step for generating a first storage instruction and a second storage instruction that instruct the receiving apparatus to store a program data for the first specific program and a program data for the second specific program in a storing unit in the receiving apparatus, respectively, and generating at first reproduction instruction and a second reproduction instruction that instruct a receiving apparatus to reproduce the program data for the first specific program and the program data for the second specific program, respectively, in case that the program data for the first specific program and the program data for the second specific program have been stored in the storing unit; and

a transmission step for transmitting (a) a plurality of the first storage instructions before the first time period, (b) the first reproduction instruction at the starting time of the first

time period, (c) a plurality of the second storage instructions before the second time period, and (d) the second reproduction instruction at the starting time of the second time period, while repeatedly transmitting the program data of each of the data broadcasting program, the ~~first~~ first specific program, and the second specific program in accordance with the result of allotment in the allotment step.

29. (Currently Amended) A broadcasting method for transmitting a data broadcasting program and a first specific program and a second specific program which are interposed in the data broadcasting program, the broadcasting method comprising the steps of:

an allotment step for

(a) allotting a broadcasting bandwidth for a first time period and a second time period to the first specific program and the second specific program, the first time period and the second time period are included in a total time period between a starting time and a finishing time for broadcasting the data broadcasting program, and

(b) allotting a part of the broadcasting bandwidth to the first and the second specific programs and the other part of the broadcasting bandwidth to the data broadcasting program for all of time periods other than the first and the second time periods in the total time period;

an instruction generation step for generating a first storage instruction and a second storage instruction that instruct the receiving apparatus to store a program data for the first specific program and a program data for the second specific program in a storing unit in the receiving apparatus, respectively, and generating a first reproduction instruction and a second reproduction instruction that instruct a receiving apparatus to reproduce the program data for the first specific program and the program data for the second specific program, respectively, in case that the program data for the first specific program and the program data for the second specific program have been stored in the storing unit; and

a transmission step for transmitting (a) a plurality of the first storage instructions before the first time period, (b) the first reproduction instruction at the starting time of the first time period, (c) a plurality of the second storage instructions before the second time period, and (d) the second reproduction instruction at the starting time of the second time period, while repeatedly transmitting the program data of each of the data broadcasting program, the ~~first~~ first specific program, and the second specific program in accordance with the result of allotment in the allotment step.

30. (Currently Amended) A broadcasting method for transmitting a data broadcasting program and a first specific program and a second specific program which are interposed in the data broadcasting program, the broadcasting method comprising the steps of:

an allotment step for

(a) allotting a broadcasting bandwidth for a first time period and a second time period to the first specific program and the second specific program, the first time period and the second time period are included in a total time period between a starting time and a finishing time for broadcasting the data broadcasting program, and

(b) allotting (1) a broadcasting bandwidth to the data broadcasting data program in the total time period except for the first time period and the second time period, (2) a part of the broadcasting bandwidth to the first specific program for a time period preceding to the first time period in the total time period, and (3) a part of the broadcasting bandwidth to the second specific program for a time period preceding to the second time period in the total time period;

an instruction generation step for generating a first storage instruction and a second storage instruction that instruct a receiving apparatus to store a program data for the first specific program and a program data for the second specific program in a storing unit in the receiving apparatus, respectively, and generating a first reproduction instruction and a second

reproduction instruction that instruct the receiving apparatus to reproduce the program data for the first specific program and the program data for the second specific program, respectively, in case that the program data for the first specific program and the program data for the second specific program have been stored in the storing unit; and a transmission step for transmitting (a) a plurality of the first storage instructions before the first time period, (b) a plurality of the second storage instructions before the second time period, (c) the first reproduction instruction at the starting time of the first time period, and (d) the second reproduction instruction at the starting time of the second time period, while repeatedly transmitting the program data of each of the data broadcasting program, the ~~first~~ first specific program, and the second specific program in accordance with the result of allotment in the allotment step.

31. (Original) A broadcasting method for transmitting a program block which is composed of a data broadcasting program and a program or two or more successive programs which are interposed in the data broadcasting program, wherein a reproduction time period between a starting time and a finishing time is specified to each of the data broadcasting program and programs included in the program block, the broadcasting method comprising the steps of
an allotment step for

(a) allotting a broadcasting bandwidth from a first time to the starting time of the reproduction time period of the leading program included in the specific program block to the data broadcasting program and all of the programs included in the specific program block, and

(b) allotting the broadcasting bandwidth for a reproduction time period of each program included in the specific program block to the program and the following programs included in the same program block,

wherein the first time is a time in the reproduction time period of the data broadcasting program and which satisfies a condition so as not to interpose the other program blocks between the first time and the specific program block;

an instruction generation step for generating a storage instruction that instructs the receiving apparatus to store a program data of each program included in the specific program block in a storing unit in the receiving apparatus, and generating a reproduction instruction that instructs the receiving apparatus to reproduce the program data, in case that the program data of each program has been stored in the storing unit;

a transmission step for transmitting a plurality of the storage instructions for each program included in the specific program block before the starting time of the reproduction time period of the program, and transmitting the reproduction instruction for the program at the starting time of the reproduction time period of the program, while repeatedly transmitting the program data of the data broadcasting program and each program included in the specific program block in accordance with the result of allotment in the allotment step.

32. (Original) A program recording medium which is readable for a computer in a broadcasting apparatus, the broadcasting apparatus broadcasts a specific program to which a reproduction time period between a starting time and finishing time is specified, the reproduction being performed by a receiving apparatus, the computer program embodied on the program recording medium has the computer conduct the steps of:

an allotment step for allotting a broadcasting bandwidth for the reproduction time period to the specific program and allotting a part of the broadcasting bandwidth for a preceding time period immediately before the reproduction time period to the specific program and the other part of the broadcasting bandwidth to other program; and

at transmission step, in accordance with the result of allotment in the allotment step, for (a) repeatedly transmitting program data of the other program while transmitting program data of the specific program in the preceding time period, and (b) repeatedly transmitting the program data of the specific program in the reproduction time period.

33. (Currently Amended) A program recording medium which is readable for a computer in a broadcasting apparatus, the broadcasting apparatus transmits a data broadcasting program and a first and a second specific programs which are interposed in the data broadcasting program, the computer program embodied on the program recording medium has the computer conduct the steps of:

an allotment step for

(a) allotting a broadcasting bandwidth for a first time period and a second time period to the first specific program and the second specific program, the first time period and the second time period are included in a total time period between a starting time and a finishing time for broadcasting the data broadcasting program, and

(b) allotting a part of the broadcasting bandwidth to the first and the second specific programs and the other part of the broadcasting bandwidth to the data broadcasting program for all of time periods other than the first and the second time periods in the total time period;

an instruction generation step for generating a first storage instruction and a second storage instruction that instruct the receiving apparatus to store a program data for the first specific program and a program data for the second specific program in a storing unit in the receiving apparatus, respectively, and generating a first reproduction instruction and a second reproduction instruction that instruct a receiving apparatus to reproduce the program data for the first specific program and the program data for the second specific program, respectively, in case

that the program data for the first specific program and the program data for the second specific program have been stored in the storing unit; and

a transmission step for transmitting (a) a plurality of the first storage instructions before the first time period, (b) the first reproduction instruction at the starting time of the first time period, (c) a plurality of the second storage instructions before the second time period, and (d) the second reproduction instruction at the starting time of the second time period, while repeatedly transmitting the program data of each of the data broadcasting program, the ~~first~~ first specific program, and the second specific program in accordance with the result of allotment in the allotment step.

34. (Currently Amended) A program recording medium which is readable for a computer in a broadcasting apparatus, the broadcasting apparatus transmits a data broadcasting program and a first and a second specific programs which are interposed in the data broadcasting program, the computer program embodied on the program recording medium has the computer conduct the steps of:

an allotment step for

(a) allotting a broadcasting bandwidth for a first time period and a second time period to the first specific program and the second specific program, the first time period and the second time period are included in a total time period between a starting time and a finishing time for broadcasting the data broadcasting program, and

(b) allotting (1) a broadcasting bandwidth to the data broadcasting data program in the total time period except for the first time period and the second time period, (2) a part of the broadcasting bandwidth to the first specific program for a time period preceding to the first time period in the total time period, and (3) a part of the broadcasting bandwidth to the second specific program for a time period preceding to the second time period in the total time period;

an instruction generation step for generating a first storage instruction and a second storage instruction that instruct a receiving apparatus to store a program data for the first specific program and a program data for the second specific program in a storing unit in the receiving apparatus, respectively, and generating a first reproduction instruction and a second reproduction instruction that instruct the receiving apparatus to reproduce the program data for the first specific program and the program data for the second specific program, respectively, in case that the program data for the first specific program and the program data for the second specific program have been stored in the storing unit; and

a transmission step for transmitting (a) a plurality of the first storage instructions before the first time period, (b) a plurality of the second storage instructions before the second time period, (c) the first reproduction instruction at the starting time of the first time period, and (d) the second reproduction instruction at the starting time of the second time period, while repeatedly transmitting the program data of each of the data broadcasting program, the ~~first~~ first specific program, and the second specific program in accordance with the result of allotment in the allotment step.

35. (Original) A program recording medium which is readable for a computer in a broadcasting apparatus, the broadcasting apparatus transmits a program block which is composed of a data broadcasting program and a program or two or more successive programs which are interposed in the data broadcasting program, wherein a reproduction time period between a starting time and a finishing time is specified to each of the data broadcasting program and programs included in the program block, the computer program embodied on the program recording medium has the computer conduct the steps of:

an allotment step for

(a) allotting a broadcasting bandwidth from a first time to the starting time of the reproduction time period of the leading program included in the specific program block to the data broadcasting program and all of the programs included in the specific program block, and

(b) allotting the broadcasting bandwidth for a reproduction time period of each program included in the specific program block to the program and the following programs included in the same program block,

wherein the first time is a time in the reproduction time period of the data broadcasting program and which satisfies a condition so as not to interpose the other program blocks between the first time and the specific program block;

an instruction generation step for generating a storage instruction that instructs the receiving apparatus to store a program data of each program included in the specific program block in a storing unit in the receiving apparatus, and generating a reproduction instruction that instructs the receiving apparatus to reproduce the program data, in case that the program data of each program has been stored in the storing unit;

a transmission step for transmitting a plurality of the storage instructions for each program included in the specific program block before the starting time of the reproduction time period of the program, and transmitting the reproduction instruction for the program at the starting time of the reproduction time period of the program, while repeatedly transmitting the program data of the data broadcasting program and each program included in the specific program block in accordance with the result of allotment in the allotment step.

36. (Original) A program that is readable for a computer in a broadcasting apparatus, the broadcasting apparatus broadcasts a specific program to which a reproduction time period between a starting time and finishing time is specified, the reproduction being performed by a receiving apparatus, the program has the computer conduct the steps of:

an allotment step for allotting a broadcasting bandwidth for the reproduction time period to the specific program and allotting a part of the broadcasting bandwidth for a preceding time period immediately before the reproduction time period to the specific program and the other part of the broadcasting bandwidth to other program; and

a transmission step, in accordance with the result of allotment in the allotment step, for (a) repeatedly transmitting program data of the other program while transmitting program data of the specific program in the preceding time period, and (b) repeatedly transmitting the program data of the specific program in the reproduction time period.

37. (Currently Amended) A program that is readable for a computer in a broadcasting apparatus, the broadcasting apparatus transmits a data broadcasting program and a first and a second specific programs which are interposed in the data broadcasting program, the program has the computer conduct the steps of:

an allotment step for

(a) allotting a broadcasting bandwidth for a first time period and a second time period to the first specific program and the second specific program, the first time period and the second time period are included in a total time period between a starting time and a finishing time for broadcasting the data broadcasting program, and

(b) allotting a part of the broadcasting bandwidth to the first and the second specific programs and the other part of the broadcasting bandwidth to the data broadcasting

program for all of time periods other than the first and the second time periods in the total time period;

an instruction generation step for generating a first storage instruction and a second storage instruction that instruct the receiving apparatus to store a program data for the first specific program and a program data for the second specific program in a storing unit in the receiving apparatus, respectively, and generating a first reproduction instruction and a second reproduction instruction that instruct a receiving apparatus to reproduce the program data for the first specific program and the program data for the second specific program, respectively, in case that the program data for the first specific program and the program data for the second specific program have been stored in the storing unit; and

a transmission step for transmitting (a) a plurality of the first storage instructions before the first time period, (b) the first reproduction instruction at the starting time of the first time period, (c) a plurality of the second storage instructions before the second time period, and (d) the second reproduction instruction at the starting time of the second time period, while repeatedly transmitting the program data of each of the data broadcasting program, the ~~first~~ first specific program, and the second specific program in accordance with the result of allotment in the allotment step.

38. (Currently Amended) A program that is readable for a computer in a broadcasting apparatus, the broadcasting apparatus transmits a data broadcasting program and a first and a second specific programs which are interposed in the data broadcasting program, the program has the computer conduct the steps of:

an allotment step for

(a) allotting a broadcasting bandwidth for a first time period and a second time period to the first specific program and the second specific program, the first time period and the

second time period are included in a. total time period between a starting time and a finishing time for broadcasting the data broadcasting program, and

(b) allotting (1) a broadcasting bandwidth to the data broadcasting data program in the total time period except for the first time period and the second time period, (2) a part of the broadcasting bandwidth to the first specific program for a time period preceding to the first time period in the total time period, and (3) a part of the broadcasting bandwidth to the second specific program for a time period preceding to the second time period in the total time period;

an instruction generation step for generating a first storage instruction and a second storage instruction that instruct a receiving apparatus to store a program data for the first specific program and a program data for the second specific program in a storing unit in the receiving apparatus, respectively, and generating a first reproduction instruction and a second reproduction instruction that instruct the receiving apparatus to reproduce the program data for the first specific program and the program data for the second specific program, respectively, in case that the program data for the first specific program and the program data for the second specific program have been stored in the storing unit; and

a transmission step for transmitting (a) a plurality of the first storage instructions before the first time period, (b) a plurality of the second storage instructions before the second time period, (c) the first reproduction instruction at the starting time of the first time period, and (d) the second reproduction instruction at the starting time of the second time period, while repeatedly, transmitting the program data of each of the data broadcasting program, the ~~first~~ first specific program, and the second specific program in accordance with the result of allotment in the allotment step.

39. (Original) A program that is readable for a computer in a broadcasting apparatus, the broadcasting apparatus transmits a program block which is composed of a data broadcasting

program and a program or two or more successive programs which are interposed in the data broadcasting program, wherein a reproduction time period between a starting time and a finishing time is specified to each of the data broadcasting program and programs included in the program block, the program has the computer conduct the steps of:

an allotment step for

(a) allotting a broadcasting bandwidth from a first time to the starting time of the reproduction time period of the leading program included in the specific program block to the data broadcasting program and all of the programs included in the specific program block, and

(b) allotting the broadcasting bandwidth for a reproduction time period of each program included in the specific program block to the program and the following programs included in the same program block,

wherein the first time is a time in the reproduction time period of the data broadcasting program and which satisfies a condition so as not to interpose the other program blocks between the first time and the specific program block;

an instruction generation step for generating a storage instruction that instructs the receiving apparatus to store a program data of each program included in the specific program block in a storing unit in the receiving apparatus, and generating a reproduction instruction that instructs the receiving apparatus to reproduce the program data, in case that the program data of each program has been stored in the storing unit;

a transmission step for transmitting a plurality of the storage instructions for each program included in the specific program block before the starting time of the reproduction time period of the program, and transmitting the reproduction instruction for the program at the starting time of the reproduction time period of the program, while repeatedly transmitting the

program data of the data broadcasting program and each program included in the specific program block in accordance with the result of allotment in the allotment step.